

Remarks/Arguments

In the Office Action dated May 14, 2009, it is noted that claims 1-28 are pending in this application; that claims 1, 7, 12, 18, 22, and 25 stand rejected under 35 U.S.C. §102; and that claims 3-6, 8-11, 13-17, 19-21, 23, 24, and 26-28 stand rejected under 35 U.S.C. §103.

Claims 1, 7, 12, 18, 20-25, 27, and 28 have been amended as shown in the listing above to make editorial changes to their respective preambles. The specification and abstract have been amended to correct an inadvertent typographical error by replacing "contiguous(ly)" with the correct spelling as "continuous(ly)." Also, claims 7, 12, 22, and 25 have been amended to call for "incrementally increasing high frequency response" as shown in Figure 4. No new matter has been added.

Cited Art

The following references have been cited and applied in the present Office Action: Figure 1 and paragraphs [0002]-[0006] of Applicant's U.S. Patent Application (hereinafter referenced as "AAPA"); U.S. Patent 4,554,533 to Bosnak (hereinafter referenced as "*Bosnak*"); and U.S. Patent 5,588,065 to Tanaka et al. (hereinafter referenced as "*Tanaka*").

Rejection of Claims 1, 7, 12, 18, 22, and 25 under 35 U.S.C. §102

Claims 1, 7, 12, 18, 22, and 25 stand rejected under 35 U.S.C. §102 as being anticipated by AAPA. This rejection is respectfully traversed.

Claims 1, 7, 12, 18, 22, and 25 are all independent claims. Claims 1, 7, and 12 are apparatus claims, whereas claims 18, 22, and 25 are method claims. Each of claims 1, 12, 18, and 25 recites substantially similar limitations; in a like manner, each of claims 7 and 22 recites substantially similar limitations. For each like set of claims only one set of limitations will be discussed herein below. It will be understood that, for the sake of brevity of this response, the remarks below are intended to pertain to all the independent claims that include such similar limitations.

At the outset, it is necessary to address the Examiner's comment that "[t]he examiner maintains his stand" regarding the AAPA. See *present Office Action at page 2*. It is felt necessary to address this comment because the USPTO's position has been contradictory of prior positions asserted by the USPTO concerning the teachings, or lack thereof, for AAPA and because the prosecution history includes admissions by the USPTO that contradict the Examiner's current position with respect to the teachings and application of AAPA.

A brief review of the prosecution history is believed to be in order. A rejection of certain independent claims was introduced using AAPA under 35 U.S.C. §102 in the Office Action dated July 30, 2007. But that rejection was apparently overcome by the Applicant's response filed on December 14, 2007 as evidenced by the Final Office Action dated November 12, 2008. In that Final Office Action, a new rejection combined Yamaguchi with AAPA under 35 U.S.C. §103 with respect to all the independent claims stating that AAPA "fails to disclose incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the output signal ... incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the output signal ... as taught in Yamaguchi." See *Final Office Action at page 4*. In response to the Final Office Action, Applicant successfully argued in a response dated March 11, 2009 that the combination of Yamaguchi and AAPA did not teach, show, or suggest the invention defined in the independent claims. The argument was successful because the USPTO commented that "Applicant's argument is deemed persuasive." See *Advisory Action dated May 6, 2009 at paragraph 13*. Finally, in apparent contradiction both to admissions in the Final Office Action and to the decisions in consideration of the response to the initial Non-Final Office Action in 2007, the present Office Action inexplicably reverts to rejecting all the independent claims under 35 U.S.C. §102.

No new section of AAPA has been proffered in the present Office Action to change or otherwise reverse the Examiner's earlier admission that AAPA "fails to disclose incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the output signal ... incrementally decreasing gain adjustments to the reproduced audio program signal as a function of an

decreasing amplitude of the output signal ... as taught in Yamaguchi.” See *Final Office Action* at page 4. Instead, it is baldly stated in the present Office Action without any support that “[t]he term **incremental** is rather broad thus the varying changes of gain in regards to noise of AAPA (AAPA, fig. 1; para 0006: varying changes of amplitude due to ambient noise level is incremental) could incrementally change the amplitude based on the amount of surrounding noise level.” See *present Office Action* at page 2, paragraph 1. By the unsupported statement, the Examiner relies on an interpretation of the term “incremental” from the claims without any express teaching or statement or support for such an interpretation in the prior art or AAPA. Thus, it is confusing at best to try to understand the USPTO position on the teachings of AAPA in view of the several admissions of record by the USPTO that would lead one to believe reasonably that AAPA still does not teach, show, or suggest all the limitations of the independent claims and particularly those limitations that are substantially similar to the limitations in claim 1 for “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal.” Moreover, in light of the current prosecution history established by the USPTO, it is believed to be improper for the USPTO to make a bald assertion such as “[t]he term **incremental** is rather broad thus the varying changes of gain in regards to noise of AAPA (AAPA, fig. 1; para 0006: varying changes of amplitude due to ambient noise level is incremental) could incrementally change the amplitude based on the amount of surrounding noise level” without providing some teaching or case law that would support the assertion. *Ibid.*

The cited Figure and paragraph of AAPA in the present Office Action as cited immediately above does not teach, show, or suggest that “varying changes of amplitude due to ambient noise level is incremental.” See *Office Action* at pages 2, 3, and 4. Figure 1 lacks any mention of the terms “increment,” “incremental,” or “incrementally.” Paragraph [0006] of AAPA also lacks any mention of these terms in reference to the prior art embodiment in Figure 1, as evidenced from the paragraph as reproduced for convenient reference directly below:

“Such conventional speaker systems provide amplitude compensation linearly and directly as a function of the changing ambient noise. This linear compensation is a transfer function f_1 expressed by the equation $f_1(S_{an}) = (S_{in} \times S_{an})$, where S_{in} is the program input signal amplitude and S_{an} is the ambient noise signal amplitude. However, the above linear transfer function is non-optimal for at least retail store and other commercial environments, which commonly exhibit frequent and widely varying changes in ambient noise, since the conventionally compensated speaker output signal provides commensurately frequent and widely varying changes in sound levels that can be annoying to listeners. Thus, what is needed is a speaker system providing direct, but incremental, amplitude compensation as a function of f_1 of such frequent and widely varying changes in ambient noise.”

It cannot be overlooked that this very paragraph characterizes the problem of the prior art speaker system as one wherein “the conventionally compensated speaker output signal provides commensurately frequent and widely varying changes in sound levels that can be annoying to listeners.” In contrast, the paragraph goes on to define a need to overcome this problem of the prior art speaker system by stating that “what is needed is a speaker system providing direct, but incremental, amplitude compensation as a function of f_1 of such frequent and widely varying changes in ambient noise.” From a simple analysis of these two sentences at the end of paragraph [0006], it is clear that the concept of “incremental” compensation of the frequent and widely varying changes in the ambient noise is definitely missing from the conventional prior art speaker system described in paragraphs [0002]-[0006] and Figure 1 of AAPA because the Applicant states that an “incremental” approach is what is needed to overcome the problems in the prior art.

The prior art speaker system's problems are caused by continuous or continual gain increases for the input signal. In paragraph [0005] of AAPA, it is clearly stated that “ P_1 introduces a transfer function f_1 providing continually increasing gain of S_{in} with increasing amplitude of a signal process control signal.” [Emphasis supplied]. This is consistent with the problematic result stated in paragraph [0006] of AAPA that “the conventionally compensated speaker output signal provides commensurately frequent and widely varying changes in sound levels that can be annoying to listeners.” In other

words, the continual increase in the gain of the signal gives rise to the commensurately frequent and widely varying changes in sound levels that annoy listeners.

Applicant's solution to the prior art problem is to provide incremental compensation to the input audio signal. Incremental compensation is defined by Applicant and distinguished expressly from continual or continuous compensation as employed in the prior art speaker system of AAPA. In paragraph [0015], Applicant clearly draws a distinction between the terms "incremental" and "continuous". Specifically, Applicant states that the signal process with processing functions "are incremental, as opposed to continuous." [Emphasis supplied]. *See amended specification above*. Applicant unequivocally contrasts the terms "incremental" for his claimed invention with "continuous" as applied to AAPA. By performing his functions in an "incremental" manner as opposed to a continuous manner of the prior art, Applicant achieves the expressly desired solution to the prior art problems, namely, "that the volume of the reproduced sound does not change too frequently as a consequence of rapidly occurring large changes in the ambient noise." *See Applicant's specification at paragraph [0015] and compare with paragraph [0006]*.

The exemplary embodiments of various incremental adjustments are given as being stepwise, such as in steps of about 1 dB to about 10 dB, in paragraphs [0018] and [0024]. Perhaps, it would be helpful to understand that the use of steps expressed by a "non-linear equation" in paragraph [0018] could have been expressed alternatively as being piecewise linear or even discontinuous. These latter terms are provided only to assist the Examiner in understanding the term "incremental" using similar mathematical terms and concepts that may be more familiar to the Examiner. Moreover, these alternative terms help to underscore that stated differences from and opposition to the term continuous in the prior art. It is understood that these alternative terms are not intended to be used to actually define the term in the claims since these words do not appear in the specification.

Since the prior art described in paragraphs [0002]-[0006] relies on a continuous adjustment or compensation and since the incremental adjustment in the presently claimed invention has been defined as being "as opposed to continuous," which is in the prior art form of adjustment, it is submitted that the term "incremental(ly)" cannot be

reasonably interpreted to mean or include in its meaning any concept of the prior art encompassing "continuous(ly)". Any attempt, such as the ones on pages 2-4 of the present Office Action, to expand the meaning of "incremental(ly)" to include a concept of "continuous(ly)" from the prior art system is clearly improper and contrary to Applicant's teachings given that a definite distinction from that prior art concept has been expressly made by the Applicant. That express distinction in paragraph [0015] of Applicant's specification cannot be ignored or diminished.

From the remarks above, it is clear that AAPA still lacks any express teaching, showing, or suggestion for "incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal," as defined in claim 1. Moreover and contrary to the Office's current assertion, the term "incrementally" in claim 1 cannot be interpreted as being broad enough to encompass the "continuous" nature of compensation in the prior art speaker system in AAPA without completely ignoring the definition set forth expressly by Applicant in the specification. As a result, it is believed that AAPA does not teach, show, or suggest all the limitations of claim 1. Since independent claims 12, 18, and 25 all include limitations similar to the ones discussed above from claim 1, it is also believed that AAPA does not teach, show, or suggest all the limitations of claims 12, 18, and 25.

Amended claims 7, 12, 22, and 25 all include a limitation that calls for "incrementally increasing high frequency response of the reproduced audio program signal." It has already been established above that "incremental" is defined by Applicant as being "as opposed to continuous." *See Applicant's specification at paragraph [0015].* AAPA lacks any teaching that adjustments should be incremental. AAPA appears to teach that adjustments to signals are to be made continuously or continually, which in turn leads to the problem of frequent and widely varying changes in sound levels that are annoying to listeners. *See AAPA at paragraph [0006].* It is only by using the incremental adjustments defined in these claims that one can overcome the problems of the prior art. Without such a teaching in AAPA, it is submitted that AAPA does not teach, show, or suggest all the limitations of claims 7, 12, 22, and 25.

Finally, present Office Action fails to establish a prima facie case of anticipation with respect to the limitations in claims 7, 12, 22, and 25. Nowhere in the present Office Action is there a correspondence shown between the alleged teachings of AAPA and the limitations of these claims, specifically, the limitations regarding “incrementally increasing high frequency response of the reproduced audio program signal ... and vice versa.” Without such a correspondence shown, it is submitted that the USPTO has failed to carry its burden of establishing a prima facie case of anticipation against all the limitations in the claims.

In light of all the remarks above, it is submitted that the limitations of claims 1, 7, 12, 18, 22, and 25 are not anticipated by AAPA and would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA. Thus, it is believed that claims 1, 7, 12, 18, 22, and 25 are allowable under both 35 U.S.C. §102 and 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Rejection of Claims 2, 3, 19, and 26 under 35 U.S.C. §103

Claims 2, 13, 19, and 26 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA. This rejection is respectfully traversed.

Claim 2 depends from independent base claim 1; claim 13 depends from independent base claim 12; claim 19 depends from independent base claim 18; and claim 26 depends from independent base claim 25. The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition. It should be understood that the rejected dependent claims include all the limitations from their respective base independent claims and also include additional limitations over those presented in the base claims.

The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition, except to repeat that AAPA fails to teach, show, or suggest all the elements of the base independent claims.

In light of the remarks above and because of the dependence on the independent base claims discussed above, it is believed that the elements of dependent claims 2, 13, 19, and 26 would not have been obvious to a person of ordinary skill in the

art upon a reading of AAPA. Thus, it is submitted that claims 2, 13, 19, and 26 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Rejection of Claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 under 35 U.S.C. §103

Claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA in view of Bosnak. This rejection is respectfully traversed.

Claims 3 and 5 depend ultimately from independent base claim 1; claims 8 and 10 depend ultimately from independent base claim 7; claims 14 and 16 depend ultimately from independent base claim 12; claims 20 and 21 depend ultimately from independent base claim 18; claims 23 and 24 depend ultimately from independent base claim 22; and claims 27 and 28 depend ultimately from independent base claim 25. The rejected dependent claims include all the limitations from their respective base independent claims and also include additional limitations over those presented in the base claims.

The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition, except to repeat that AAPA fails to teach, show, or suggest all the elements of the base independent claims. Bosnak has been added to AAPA because it has been stated that AAPA fails to disclose various elements related to the amplifier connection as defined in each of claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28.

Bosnak appears to teach a method for the testing warning systems. In Bosnak, it appears that the operational status of a remotely controlled electronic siren is periodically tested without production of an audible sound. The test procedure includes energizing the voice coils of the siren loudspeakers with a signal outside of the audible range, sensing whether current flows in the speaker voice coil circuits, and storing the results of the test. Upon request, the stored information is apparently capable of being transmitted back to the command post. *See Bosnak in the Abstract.* But, Bosnak lacks any teaching, showing, or suggestion concerning “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing

amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal" as taught in Applicant's Specification and as defined in Applicant's independent base claim 1 and similarly in independent base claims 12, 18, and 25. Moreover, Bosnak lacks any teaching, showing, or suggestion concerning "incrementally increasing high frequency response of the reproduced audio program signal ... and vice versa" as taught in Applicant's Specification and as defined in Applicant's independent base claim 7 and similarly in independent base claims 12, 22, and 25.

In light of the remarks above and because of their dependence on the independent base claims discussed above, it is believed that the elements of dependent claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA and Bosnak, either separately or in combination. Thus, it is submitted that claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Rejection of Claims 4, 6, 9, 11, 15, and 17 under 35 U.S.C. §103

Claims 4, 6, 9, 11, 15, and 17 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA in view of Bosnak and further in view of Tanaka. This rejection is respectfully traversed.

Claims 4 and 6 depend from independent base claim 1 and from intervening dependent claims 3 and 3/5, respectively; claims 9 and 11 depend from independent base claim 7 and from intervening dependent claims 8 and 8/10, respectively; and claims 15 and 17 depend from independent base claim 12 and from intervening dependent claims 14 and 14/16, respectively. The rejected dependent claims include all the limitations from their respective base independent claims and intervening dependent claims and they also include additional limitations over those presented in the base and intervening claims.

The patentability of the base independent claims and the respective intervening dependent claims has already been discussed above with respect to AAPA and the

combination of AAPA with Bosnak. Accordingly, it will be understood to be incorporated herein without further repetition. Tanaka has been added to the combination of AAPA and Bosnak because it has been stated that the aforementioned combination fails to disclose various elements related to the diaphragm dimension of the single speaker driver as defined in each of claims 4, 6, 9, 11, 15, and 17.

Tanaka appears to teach a bass reproduction speaker apparatus that includes a cabinet with an opening having a division member inside thereof, a speaker unit disposed at the division member, a passive radiator disposed in the opening; an amplifier for driving the speaker unit, a detector for detecting a vibration of a moving system of the speaker unit, and a feedback circuit for feeding back an output signal from the detector to the amplifier. *See Tanaka in the, Abstract.* However, Tanaka lacks teaching, showing or suggestion concerning "incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal" as taught in Applicant's Specification and as defined in Applicant's independent base claim 1 and similarly in independent base claims 12, 18, and 25. Moreover, Tanaka lacks any teaching, showing, or suggestion concerning "incrementally increasing high frequency response of the reproduced audio program signal ... and vice versa" as taught in Applicant's Specification and as defined in Applicant's independent base claim 7 and similarly in independent base claims 12, 22, and 25.

In light of the remarks above and because of their dependence on the respective independent base claims discussed above, it is believed that the limitations of dependent claims 4, 6, 9, 11, 15, and 17 would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA, Bosnak, and Tanaka, either separately or in combination. Thus, it is submitted that claims 4, 6, 9, 11, 15, and 17 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that all the claims pending in this patent application are in condition for allowance. Entry of this amendment, reconsideration, and allowance of all the claims are respectfully solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner contact the Applicant's attorney, so that a mutually convenient date and time for a telephonic interview may be scheduled for resolving such issues as expeditiously as possible.

In the event there are any errors with respect to the fees for this response or any other papers related to this response, the Director is hereby given permission to charge any shortages and credit any overcharges of any fees required for this submission to Deposit Account No. 07-0832.

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August 13, 2009